INTERRELATIONSHIP AMONG MULTIPLE INTELLIGENCES AND SCIENCE INTEREST: AN ANALYTICAL STUDY ON STUDENTS AT PRIMARY LEVEL

1.1. INTRODUCTION

Education should be a process that makes an individual complete in all respects. Kalam (2007) says the education system should instill in the minds of students' capacities of inquiry, creativity, technology, entrepreneurial and moral leadership to produce autonomous, self directed, self controlled, lifelong learner who is capable to transform India to a developed nation in a time bound manner. Clearly, education is about knowledge, but knowledge without values is incomplete. It is like a flower without fragrance. Education should impart good values to the youth that makes them sensitive to fellow human being and the environs around them. Good health is also important for performing any activity. Students should improve their physical fitness by participating in sports and athletics.

Our present educational system is heavily biased towards the Linguistic and Logical-Mathematical modes of instruction. Teachers traditionally teach science using two approaches – Linguistic approach and Logical-Mathematical approaches. These approaches benefit the students who are linguistically and mathematically talented. If instruction is really effective, the subject matter must be selected and organized in such a way as to make it appropriate and suited to the age and intellectual development of the students. Since students do not learn with equal facility or at equal rates, there must be provision for differences in achievements.

The theory of Multiple Intelligences implies that all individuals are able to know the world through Language, Logical-Mathematical analysis, Spatial representation, Musical thinking, the use of the body to solve problems, or to make things, and understanding of ourselves. Where individuals differ in their strength of those components of Intelligences and in the ways in which intelligence is invoked and combined to carryout different tasks, solve diverse problems and progress in various domains. Multiple Intelligence pedagogy insists to teach the subject by incorporating all the ten components of Intelligence. This will help the teachers to identify, appreciate and reduce the Intelligences in all the students. The teacher could assess the intellectual strengths and weakness of each student. Thus the teacher could help the student to learn the subject through their well-developed Intelligences. In the meanwhile, they could help the students to develop neglected Intelligences as well as to activate under developed or paralyzed intelligence.

When the learning of the subject takes place through the preferred Intelligences of the students, they will have interest for learning. This will create a favourable attitude towards the subject as well as will help the learner to attain high marks in science. The learner will score more only when he/she has strong interest in science subjects. Knowing the components of Multiple Intelligence well, we can predict which element of Intelligences foster more for the development of science interest.

1.2. NEED AND SIGNIFICANCE OF THE STUDY

The Multiple Intelligences Theory challenged traditional belief in the fields of education and cognitive science. According to a traditional definition, all people are born with uniform cognitive capacity and adaptability for the new problematic situations. But according to Gardner (1983), intelligence has the following theoretical basis;

- The ability to create an effective product or offer a service that is valued in a culture.
- A set of skills that make it possible for a person to solve problems in life.
- The potential for finding or creating solutions for problems, which involves gathering new knowledge.

This new outlook on intelligence differs greatly from traditional view and claims that all human beings have Multiple Intelligences, which can be nurtured and strengthened. Multiple Intelligences has ten components of Intelligence and the intellectual composition differs in each person. The theory states that all the Intelligences are needed to productivity function in society. Thus the theory of Multiple Intelligences implies that educators should recognize and teach students with a broader range of talents and skills.

Science is an essential component of education at the present age; more attention should be paid to the teaching of science. Science and its teaching can solve the problems of hunger and poverty, insanitation and illiteracy of superstitious customs and traditions of vast resources running to waste in an affluent country inhibited by starving people to a great extent. The scientific and technological revolution of the present scenario has necessitated that every country should have an adequate number of Scientists, Technologist and Technicians without which, it is being feared and the country will bound to take a backward pace in the nation's race of progress. Hence the school should provide certain opportunities of such kind's right from the primary classes, so that the innate potentialities of each learner will get developed. This will facilitate the learner to study about him selves and in turn he will be made fit to work for the nation's future progress. "Any interest or ability is redefined as intelligence" (Gardner, 1985).

The study intended to assess the Interrelationship among Multiple Intelligences and Science Interest, so that a clear image on the area of intelligence will be obtained through which we can promote Science Interest. This study acknowledges that while all students may not be verbally or mathematically gifted, they may have an expertise in other areas such as Music, Spatial relations or Inter or Intra personal Intelligences. Though the students are expertise in other areas of Intelligences Interest of Science is being promoted. This is the prime focus of this study.

The Investigator selected Primary school students because young prodigies in science could be identified at an impressionable age level through a pictured form of Picturised Science Interest Inventory (PSII), which will be more convenient to channelize them to the science stream for enhancing better achievement in future. Through the Multiple Intelligences analysis (creating Intelligence profile) we can assess which

components of Multiple Intelligence could foster Science Interest among students of Elementary stream.

1.3 STATEMENT OF THE PROBLEM

The study intends to identify the Interrelationship among the components of Multiple Intelligences with Science Interest on elementary school students. The study is entitled as; INTERRELATIONSHIP AMONG MULTIPLE INTELLIGENCES AND SCIENCE INTEREST: AN ANALYTICAL STUDY ON STUDENTS AT PRIMARY LEVEL.

1.4. OBJECTIVES OF THE STUDY

Objectives of the study are;

1. To construct and standardize Multiple Intelligences Test Battery (MITB) for measuring components of Multiple Intelligences at Primary level.
2. To construct and standardize a Picturised Science Interest Inventory (PSII) for measuring the interest in Science at Primary level.
3. To identify the levels of components of Multiple Intelligences of students at Primary level for the Total sample and the relevant sub samples.
4. To compare the components of Multiple Intelligence for sub samples based on
    1) Gender (Boys & Girls)
    2) Locale (Rural & Urban)
    3) Type of Schools (Government & Aided/Unaided {Private})
    4) Educational level (Upper Primary classes V, VI & VII)
    5) Achievement in science (Std: VII)
5. To find out the interrelationship among Components of Multiple Intelligences of students at Primary level for the Total sample.
6. To identify the levels of Science Interest of students at Primary level for the Total sample and relevant sub samples.
7. To compare the levels of Science Interest of students at Primary level for sub samples based on
    1) Gender (Boys & Girls)
    2) Locale (Rural & Urban)
    3) Type of Schools (Government & Aided/Unaided{Private})
    4) Educational level (Upper primary classes V, VI & VII)
    5) Achievement in science (Std: VII)
8. To find out the relation between Science Interest and Components of Multiple Intelligences of students at Primary level namely;
    a) Verbal-Linguistic Intelligence
    b) Musical Intelligence
    c) Interpersonal Intelligence
    d) Intrapersonal Intelligence
    e) Bodily -kinesthetic Intelligence
    f) Logical- Mathematical Intelligence
    g) Spatial Intelligence
    h) Naturalistic Intelligence
    i) Existential Intelligence
    j) Moral/Spiritual Intelligence

9. To find out the relation between components of Multiple Intelligence and Science Interest for sub samples based on
    1) Gender (Boys & Girls)
    2) Locale (Rural & Urban)
    3) Type of Schools (Government & Aided/Unaided{Private})
    4) Educational level (Upper primary classes V, VI & VII)
    5) Achievement in science (Std: VII)
10. To find out which components of Multiple Intelligence have significant impact on Science Interest.

1.5. HYPOTHESES OF THE STUDY

The major Hypotheses formulated for the study are the following:

H_1: There is significant relation between Science Interest and Components of Multiple Intelligences namely,

a) Verbal-Linguistic Intelligence
b) Musical Intelligence
c) Interpersonal Intelligence
d) Intrapersonal Intelligence
e) Bodily- Kinesthetic Intelligence
f) Logical- Mathematical Intelligence
g) Spatial Intelligence
h) Naturalistic Intelligence
i) Existential Intelligence
j) Moral/Spiritual Intelligence

H_2: There is significant relation between components of Multiple Intelligences and Science Interest for sub samples based on

1. Gender (Boys & Girls)
2. Locale (Rural & Urban)
3. Type of Schools (Government & Aided/Unaided {Private})
4. Educational level (Upper primary classes V, VI & VII)
5. Achievement in science (Only Std: VII)

H_3: The components of Multiple Intelligence have significant impact on Science Interest.

1.6. METHODOLOGY IN BRIEF

For the present study Normative survey method was adopted. Considering the nature of the study Stratified Random Sampling technique was employed for the selection of the sample. The sample for the study consists of 1000 Upper Primary school students selected from two districts of Kerala, studying in Standard V, VI and VII. To collect the required data from the sample various tools were used. In order to assess the components of Multiple Intelligences, Multiple Intelligences Test Battery (MITB) was developed by the Investigator and for assessing the Science Interest; the Investigator developed Picturised Science Interest Inventory (PSII). The collected data were consolidated, codified suitably and subjected to analysis. For analyzing the data suitably, various statistical techniques such as Karl Pearson's Product Moment Coefficient of Correlation, Partial Correlation Coefficient, Critical Ratio, Analysis of

Variance, Scheffe's test of multiple comparison and Multiple Linear Regression (Entry method) were majorly employed in this study.

1.7. SCOPE AND LIMITATIONS OF THE STUDY

The present study is intended to find out the level and interrelationship of the components of Multiple Intelligence of the Upper Primary school students on Science Interest. An earnest attempt has been made by the investigator to find out the interrelationship of the above mentioned variables on the whole sample and on the varied sub samples, the findings of the study may help the parents, teachers and administrators to realize the importance of Multiple Intelligences and Science Interest.

Even though all possible precautions were taken to get valuable and reliable results, the study has some limitations owing practical difficulties. The study is limited to two districts of Kerala. The investigator has to rely upon the information received from the Primary school students. The sample may have certain underlying unidentified characteristics which may influence their responses.

1.8. MAJOR FINDINGS AND CONCLUSION OF THE STUDY

1.8.1. Relationship between Science Interest and Components of Multiple Intelligences of students at Upper Primary level (Total Sample wise)

1) The coefficient of correlation between the scores of Science Interest and Verbal-Linguistic Intelligence is r= 0.0671(CR=2.1214, $p<0.05$). Thus it can be interpreted that there is a significant relationship between Science Interest and Verbal-Linguistic Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(a) is substantiated.

2) The coefficient of correlation between the scores of Science Interest and Musical Intelligence is r=0.0356 (CR=1.1254, $p>0.05$). Thus it can be interpreted that there is no significant relationship between of Science Interest and Musical Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(b) is substantiated.

3) The coefficient of correlation between the scores of Science Interest and Interpersonal Intelligence is r=0.0412 (CR=1.3027, $p>0.05$). Thus it can be interpreted that there is no significant relationship between of Science Interest and Interpersonal Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(c) is substantiated.

4) The coefficient of correlation between the scores of Science Interest and Intrapersonal Intelligence is r= 0.0742 (CR=2.3442, $p<0.05$). Thus it can be interpreted that there is a significant relationship between Science Interest and Intrapersonal Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(d) is substantiated.

5) The coefficient of correlation between the scores of Science Interest and Bodily-Kinesthetic Intelligence is r=-0.0319 (CR=1.0082, $p>0.05$). Thus it can be interpreted that there is no significant relationship between Science Interest and

Bodily- Kinesthetic Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(e) is substantiated.

6) The coefficient of correlation between the scores of Science Interest and Logical-Mathematical Intelligence is r=0.7816 (CR=39.5812, p<0.01). Thus it can be interpreted that there is a strong significant relationship between Science Interest and Logical- Mathematical Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(f) is substantiated.

7) The coefficient of correlation between the scores of Science Interest and Spatial Intelligence is r=0.6735 (CR=28.7823, p<0.01). Thus it can be interpreted that there is a strong significant relationship between Science Interest and Spatial Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(g) is substantiated.

8) The coefficient of correlation between the scores of Science Interest and Naturalistic Intelligence is r=0.8660 (CR=54.7095, p<0.01). Thus it can be interpreted that there is a strong significant relationship between Science Interest and Naturalistic Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(h) is substantiated.

9) The coefficient of correlation between the scores of Science Interest and Existential Intelligence is r=-0.0403 (CR=1.2741, p>0.05). Thus it can be interpreted that there is no significant relationship between Science Interest and Existential Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(i) is substantiated.

10) The coefficient of correlation between the scores of Science Interest and Moral/Spiritual Intelligence is r=-0.0630 (CR=1.9942, p<0.05). Thus it can be interpreted that there is a significant relationship between Science Interest and Moral/Spiritual Intelligence of Upper Primary school students. Therefore the Hypothesis H_1(j) is substantiated.

1.8.2. Relation between Science Interest and Components of Multiple Intelligences of students at Upper Primary level based on Gender

1) The coefficient of correlation between the scores of Science Interest and Verbal-Linguistic Intelligence of Boys and Girls are; r=0.030 (N=482, CR=0.6576; p>0.05) and r=0.145 (N=518, CR=3.3297; p<0.01) respectively. The Calculated t-value= 2.3294, p<0.05 levels. Thus, it can be interpreted that there is a significant relationship between Science interest and Verbal- Linguistic Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1a) is substantiated.

2) The coefficient of correlation between the scores of Science Interest and Musical Intelligence of Boys and Girls are; r=0.044 (N=482, t=0.9650; p>0.05) and r=0.015 (N=518, t=0.3408; p>0.05) respectively. The Calculated t-value= 1.4523, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Musical Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1b) is substantiated.

3) The coefficient of correlation between the scores of Science Interest and Interpersonal Intelligence of Boys and Girls are; r=0.057 (N=482, t=1.2509; p>0.05) and r=0.021 (N=518, t=0.4772; p>0.05) respectively. The Calculated t-value= 1.5681, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Interpersonal Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1c) is substantiated.

4) The coefficient of correlation between the scores of Science Interest and Intrapersonal Intelligence of Boys and Girls are; r=-0.011 (N=482, t=0.2410; p>0.05) and r=0.089 (N=518, t=2.0302; p<0.05) respectively. The Calculated t-value=2.0135, p<0.05levels. Thus, it can be interpreted that there is a significant relationship between Science interest and Intrapersonal Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1d) is substantiated.

5) The coefficient of correlation between the scores of Science Interest and Bodily-Kinesthetic Intelligence of Boys and Girls are; r=0.048 (N=482, t=1.0529; p>0.05) and r=-0.019 (N=518, t=0.4318; p>0.05) respectively. The Calculated t-value=1.6857, p>0.05levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Bodily- Kinesthetic Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1e) is substantiated.

6) The coefficient of correlation between the scores of Science Interest and Logical-Mathematical Intelligence of Boys and Girls are; r=0.819 (N=482, t=31.2727; p<0.01) and r=0.042 (N=518, t=0.9551; p>0.05) respectively. The Calculated t-value=22.987, p<0.01 levels. Thus, it can be interpreted that there is a strong significant relationship between Science interest and Logical- Mathematical Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1f) is substantiated.

7) The coefficient of correlation between the scores of Science Interest and Spatial Intelligence of Boys and Girls are; r=0.698 (N=482, t=21.3562; p<0.01) and r=0.245 (N=518, t=5.7415; p<0.01) respectively. The Calculated t-value=26.439, p<0.01 levels. Thus, it can be interpreted that there is a strong significant relationship between Science interest and Spatial Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1g) is substantiated.

8) The coefficient of correlation between the scores of Science Interest and Naturalistic Intelligence of Boys and Girls are; r=0.879 (N=482, t=40.3920; p<0.01) and r=0.044 (N=518, t=1.0007; p>0.05) respectively. The Calculated t-value=34.822, p<0.01 levels. Thus, it can be interpreted that there is a strong significant relationship between Science interest and Naturalistic Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1h) is substantiated.

9) The coefficient of correlation between the scores of Science Interest and Existential Intelligence of Boys and Girls are; r=0.084 (N=482, t=1.8469; p>0.05) and r=-0.029 (N=518, t=0.5236; p>0.05) respectively. The Calculated t-value=1.7832, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Existential Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1i) is substantiated.

10) The coefficient of correlation between the scores of Science Interest and Moral/Spiritual Intelligence of Boys and Girls are; r=-0.049 (N=482, t=1.0749; p>0.05) and r=0.048 (N=518, t=1.0862; p>0.05) respectively. The Calculated t-value=1.8919, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Moral/Spiritual Intelligence among Boys and Girls. Therefore the Hypothesis H_2(1j) is substantiated.

1.8.3 Relation between Science Interest and Components of Multiple Intelligences of students at Upper Primary level based on Locale

1) The coefficient of correlation between the scores of Science Interest and Verbal-Linguistic Intelligence of students residing in Rural and Urban areas are; r=-0.032 (N=540, t=0.7425; p>0.05) and r=-0.032 (N=460, t=0.6851; p>0.05) respectively. The Calculated t-value=0.0113, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Verbal- Linguistic Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2a) is substantiated.

2) The coefficient of correlation between the scores of Science Interest and Musical Intelligence of students residing in Rural and Urban areas are; r=0.029 (N=540, t=0.6728; p>0.05) and r=0.044 (N=460, t=0.9425; p>0.05) respectively. The Calculated t-value=0.2381, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Musical Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2b) is substantiated.

3) The coefficient of correlation between the scores of Science Interest and Interpersonal Intelligence of students residing in Rural and Urban areas are; r=0.069 (N=540, t=1.6040; p>0.05) and r=0.008 (N=460, t=0.1712; p>0.05) respectively. The Calculated t-value=0.9630, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science Interest and Interpersonal Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2c) is substantiated.

4) The coefficient of correlation between the scores of Science Interest and Intrapersonal Intelligence of students residing in Rural and Urban areas are; r=-0.009 (N=540, t=0.2087; p>0.05) and r=-0.018 (N=460, t=0.3853; p>0.05) respectively. The Calculated t-value=0.1337, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Intrapersonal Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2d) is substantiated.

5) The coefficient of correlation between the scores of Science Interest and Bodily-Kinesthetic Intelligence of students residing in Rural and Urban areas are; r=0.144 (N=540, t=3.3745; p<0.01) and r=-0.106 (N=460, t=2.2812; p<0.05) respectively. The Calculated t-value=3.9514, p<0.01 levels. Thus, it can be interpreted that there is a significant relationship between Science interest and Bodily- Kinesthetic Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2e) is substantiated.

6) The coefficient of correlation between the scores of Science Interest and Logical-Mathematical Intelligence of students residing in Rural and Urban areas are; r=0.681 (N=540, t=21.5655; p<0.01) and r=0.042 (N=460, t=0.8996; p>0.05) respectively. The Calculated t-value=1.6147, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Logical- Mathematical Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2f) is substantiated.

7) The coefficient of correlation between the scores of Science Interest and Spatial Intelligence of students residing in Rural and Urban are; r=0.499 (N=540, t=13.3531; p<0.01) and r=0.042 (N=460, t=0.8996; p>0.05) respectively. The Calculated t-value=1.8872, p>0.05levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Spatial Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2g) is substantiated.

8) The coefficient of correlation between the scores of Science Interest and Naturalistic Intelligence of students residing in Rural and Urban areas are; r=0.074 (N=540, t=1.7207; p>0.05) and r=0.697 (N=460, t=20.8002; p<0.01) respectively. The Calculated t-value=3.5753, p<0.01 levels. Thus, it can be interpreted that there is a strong significant relationship between Science interest and Naturalistic Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2h) is substantiated.

9) The coefficient of correlation between the scores of Science Interest and Existential Intelligence of students residing in Rural and Urban areas are; r=0.105 (N=540, t=2.4484; p<0.05) and r=-0.04 (N=460, t=0.8567; p>0.05) respectively. The Calculated t-value=2.3024, p<0.05 levels. Thus, it can be interpreted that there is a significant relationship between Science interest and Existential Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2i) is substantiated.

10) The coefficient of correlation between the scores of Science Interest and Moral/Spiritual Intelligence of students residing in Rural and Urban areas are; r=0.126 (N=540, t=2.9455; p<0.01) and r=0.051 (N=460, t=1.0928; p>0.05). The Calculated t-value=1.1852, p>0.05 levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Moral/Spiritual Intelligence among students residing in Rural and Urban areas. Therefore the Hypothesis H_2(2j) is substantiated.

1.8.4. Relation between Science Interest and Components of Multiple Intelligences of students at Upper Primary level based on Type of Management

1) The coefficient of correlation between the scores of Science Interest and Verbal-Linguistic Intelligence of students of Government and Private Schools are; r=0.012 (N=420, t=0.2454; p>0.05) and r=0.248 (N=580, t=6.1539; p<0.01) respectively. The Calculated t-value=2.3291, p<0.05 levels. Thus, it can be interpreted that there is a significant relationship between Science interest and Verbal- Linguistic Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3a) is substantiated.

2) The coefficient of correlation between the scores of Science Interest and Musical Intelligence of students of Government and Private Schools are; r=0.044 (N=420, t=0.9007; p>0.05) and r=0.015 (N=580, t=0.3606; p>0.05) respectively. The Calculated t-value=0.4529, p>0.05levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Musical Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3b) is substantiated.

3) The coefficient of correlation between the scores of Science Interest and Interpersonal Intelligence of students of Government and Private Schools are; r=0.057 (N=420, t=1.1675; p>0.05) and r=0.021 (N=580, t=0.5049; p>0.05) respectively. The Calculated t-value=0.5683, p>0.05levels. Thus, it can be interpreted that there is no significant relationship between Science Interest and Interpersonal Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3c) is substantiated.

4) The coefficient of correlation between the scores of Science Interest and Intrapersonal Intelligence of students of Government and Private Schools are; r=0.011 (N=420, t=0.2250; p>0.05) and r=0.189 (N=580, t=4.6268; p<0.01) respectively. The Calculated t-value=2.0134, p<0.05 levels. Thus, it can be interpreted that there is significant relationship between Science interest and Intrapersonal Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3d) is substantiated.

5) The coefficient of correlation between the scores of Science Interest and Bodily-Kinesthetic Intelligence of students of Government and Private Schools are; r=0.048 (N=420, t=0.9828; p>0.05) and r=0.019 (N=580, t=0.4828; p>0.05) respectively. The Calculated t-value=0.4572, p>0.05levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Bodily- Kinesthetic Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3e) is substantiated.

6) The coefficient of correlation between the scores of Science Interest and Logical-Mathematical Intelligence of students of Government and Private Schools are; r=0.049 (N=420, t=1.0033; p>0.05) and r=0.012 (N=580, t=0.3016; p>0.05) respectively. The Calculated t-value=0.9876, p>0.05levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Logical- Mathematical Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3f) is substantiated.

7) The coefficient of correlation between the scores of Science Interest and Spatial Intelligence of students of Government and Private Schools are; r=0.428 (N=420, t=9.6842; p<0.01) and r=0.545 (N=580, t=15.6271; p<0.01) respectively. The Calculated t-value=2.8393, p<0.01 levels. Thus, it can be interpreted that there is significant relationship between Science interest and Spatial Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3g) is substantiated.

8) The coefficient of correlation between the scores of Science Interest and Naturalistic Intelligence of students of Government and Private Schools are;

r=0.079 (N=420, t=1.6208; p>0.05) and r=0.344 (N=580, t=8.8069; p<0.01) respectively. The Calculated t-value=4.8227, p<0.01 levels. Thus, it can be interpreted that there is strong significant relationship between Science interest and Naturalistic Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3h) is substantiated.

9) The coefficient of correlation between the scores of Science Interest and Existential Intelligence of students of Government and Private Schools are; r=0.084 (N=420, t=1.7238; p>0.05) and r=0.029 (N=580, t=0.6974; p>0.05) respectively. The Calculated t-value=1.7832, p>0.05levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Existential Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3i) is substantiated.

10) The coefficient of correlation between the scores of Science Interest and Moral/Spiritual Intelligence of students of Government and Private Schools are; r=0.049 (N=420, t=1.0033; p>0.05) and r=0.048 (N=580, t=1.1553; p>0.05) respectively. The Calculated t-value=0.0119, p>0.05levels. Thus, it can be interpreted that there is no significant relationship between Science interest and Moral/Spiritual Intelligence among students of Government and Private Schools. Therefore the Hypothesis H_2(3j) is substantiated.

1.8.5. Relation between Science Interest and Components of Multiple Intelligences of students at Upper Primary level based on Educational level

1) The coefficients of correlation between the scores of Science Interest and Verbal-Linguistic Intelligence of school students at Standard V, Standard VI and Standard VII are; r=-0.033 (N=300, t=0.5699; p>0.05), r=-0.075 (N=350, t=1.4027; p>0.05) and r=0.168 (N=350, t=3.1783; p<0.01) respectively. And the t-values between Standard V and VI, Standard V and VII and Standard VI and VII are, (t=0.5327, p>0.05), (t=2.2802, p<0.05) and (t=1.1944, p>0.05) respectively. Thus, it can be interpreted that there is no significant relationships between Science interest and Verbal- Linguistic Intelligence among school students at Standard V and VI and students at Standard VI and VII and has significant relationship among school students at Standard V and VII. Hence Hypotheses $H_2(4a_1)$, $H_2(4a_2)$ and $H_2(4a_3)$ are substantiated.

2) The coefficients of correlation between the scores of Science Interest and Musical Intelligence of school students at Standard V, Standard VI and Standard VII are; r=-0.017 (N=300, t=0.2934; p>0.05), r=0.034 (N=350, t=0.6345; p>0.05) and r=-0.017 (N=300, t=0.2934; p>0.05) respectively. And the t-values between Standard V and VI, Standard V and VII and Standard VI and VII are; (t=0.4413, p>0.05), (t=0.4107, p>0.05) and (t=0.2268, p>0.05) respectively. Thus, it can be interpreted that there is no significant relationship between Science interest and Musical Intelligence among school students at Standard V and VI and students at Standard V and VII and school students at Standard VI and VII. Hence Hypotheses $H_2(4b_1)$, $H_2(4b_2)$ and $H_2(4b_3)$ are substantiated.

3) The coefficients of correlation between the scores of Science Interest and Interpersonal Intelligence of school students at Standard V, Standard VI and

Standard VII are; r=-0.023 (N=300, t=0.3971; p>0.05), r=0.085 (N=350, t=1.5910; p>0.05) and r=0.037 (N=350, t=0.6905; p>0.05). And the t-values between Standard V and VI, Standard V and VII and Standard VI and Standard VII are; (t=1.0194, p>0.05), (t=0.2138, p>0.05) and (t=2.3224, p<0.05) respectively. Thus, it can be interpreted that there is no significant relationship between Science Interest and Interpersonal Intelligence among school students at Standard V and VI, Standard V and VII and school students at Standard VI and VII. Hence the Hypotheses $H_2(4c_1)$, $H_2(4c_2)$ and $H_2(4c_3)$ are substantiated.

4) The coefficients of correlation between the scores of Science Interest and Intrapersonal Intelligence of school students at Standard V, Standard VI and Standard VII are; r=0.045 (N=300, t=0.7775; p>0.05), r=-0.051 (N=350, t=0.9524; p>0.05) and r=0.056 (N=350, t=1.0461; p>0.05) respectively. And the t-values between Standard V and VI, Standard V and VII and Standard VI and VII are; (t=2.3505, p<0.05), (t=0.6993, p>0.05) and (t=1.1018, p>0.05) respectively. Thus, it can be interpreted that there is significant relationship between Science interest and Intrapersonal Intelligence among school students at Standard V and VI and Standard VI and VII and no significant relationship between Standard V and VII. Therefore the Hypotheses $H_2(4d_1)$, $H_2(4d_2)$ and $H_2(4d_3)$ are substantiated.

5) The coefficients of correlation between the scores of Science Interest and Bodily-Kinesthetic Intelligence of school students at Standard V, Standard VI and Standard VII are; r=0.053 (N=300, t=0.9161; p>0.05), r=0.037 (N=350, t=0.6905; p>0.05) and r=-0.002 (N=350, t=0.0373; p>0.05) respectively. And the t-values between Standard V and VI, Standard V and VII and Standard VI and VII are; (t=0.8489, p>0.05), (t=0.5057, p>0.05) and (t=0.4785, p>0.05) respectively. Thus, it can be interpreted that there is no significant relationship between Science interest and Bodily- Kinesthetic Intelligence among school students at Standard V and VI, Standard V and VII and Standard VI and VII. Therefore the Hypothesis $H_2(4e_1)$, $H_2(4e_2)$ and $H_2(4e_3)$ are substantiated.

6) The coefficients of correlation obtained between the scores of Science Interest and Logical- Mathematical Intelligence of school students at Standard V, Standard VI and Standard VII are; r=0.087 (N=300, t=1.5073; p>0.05), r=0.499 (N=350, t=10.7389; p<0.01) and 0.312 (N=350, t=6.1244; p<0.01) respectively. And the t-values between Standard V and VI, Standard V and VII and Standard VI and VII are; (t=3.2063, p<0.01), (t=2.1582, p<0.05) and (t=2.0957, p<0.05) respectively. Thus, it can be interpreted that there exists a significant relationship between Science interest and Logical- Mathematical Intelligence among school students at Standard V and VI, Standard V and VII and Standard VI and VII. Therefore the Hypotheses $H_2(4f_1)$, $H_2(4f_2)$ and $H_2(4f_3)$ are substantiated.

7) The coefficients of correlation between the scores of Science Interest and Spatial Intelligence of school students at Standard V, Standard VI and Standard VII are; r=0.251 (N=300, t=4.4755; p<0.01), r=0.887 (N=350, t=35.8219; p<0.01) and 0.274 (N=350, t=5.3136; p<0.01). And the t-values between Standard V and VI, Standard V and VII and Standard VI and VII are; (t=6.3761, p<0.01), (t=1.2745, p>0.05) and (t=4.5979, p<0.01) respectively. Thus, it can be interpreted that there is significant relationship between Science interest and Spatial Intelligence among school

students at Standard V and VI and Standard VI and VII and no significant relationship among Standard V and VII. Therefore the Hypotheses $H_2(4g_1)$, $H_2(4g_2)$ and $H_2(4g_3)$ are substantiated.

8) The coefficients of correlation between the scores of Science Interest and Naturalistic Intelligence of school students at Standard V, Standard VI and Standard VII are; r=0.673 (N=300, t=15.7058; p<0.01), r=0.188 (N=350, t=3.5697; p<0.01) and r=0.195 (N=350, t=3.7079; p<0.01) respectively. And the t-values between Standard V and VI, Standard V and VII and Standard VI and VII are; (t=4.4583, p<0.01), (t=2.4913, p<0.05) and (t=2.3540, p<0.05) respectively. Thus, it can be interpreted that there is significant relationship between Science interest and Naturalistic Intelligence among school students at Standard V and VI, Standard V and VII and Standard VI and VII. Therefore the Hypotheses $H_2(4h_1)$, $H_2(4h_2)$ and $H_2(4h_3)$ are substantiated.

9) The coefficients of correlation between the scores of Science Interest and Existential Intelligence of school students at Standard V, Standard VI and Standard VII are; r=0.049 (N=300, t=0.8468; p>0.05), r=0.011 (N=350, t=0.2052; p>0.05) and r=0.116 (N=350, t=2.1461; p<0.05) respectively. And the t-values between Standard V and VI, Standard V and VII and Standard VI and VII are; (t=0.6434, p>0.05), (t=2.4872, p<0.05) and (t=1.0964, p>0.05) respectively. Thus, it can be interpreted that there is significant relationship between Science interest and Existential Intelligence among school students at Standard V and VII and no significant relationships among Standard V and VI and Standard VI and VII. Therefore the Hypotheses $H_2(4i_1)$, $H_2(4i_2)$ and $H_2(4i_3)$ are substantiated.

10) The coefficients of correlation between the scores of Science Interest and Moral/Spiritual Intelligence of school students at Standard V, Standard VI and Standard VII are; r=0.042 (N=300, t=0.7256; p>0.05), r=0.143 (N=350, t=2.6947; p<0.01) and r=0.146 (N=350, t=2.7524; p<0.01) respectively. And the t-values between Standard V and VI, Standard V and VII and Standard VI and VII are; (t=2.0743, p<0.05), (t=0.3014, p>0.05) and (t=1.6432, p>0.05) respectively. Thus, it can be interpreted that there is significant relationship between Science interest and Moral/Spiritual Intelligence among school students at Standard V and VI and no significance among Standard V and VII and Standard VI and VII. Therefore the Hypotheses $H_2(4j_1)$, $H_2(4j_2)$ and $H_2(4j_3)$ are substantiated.

1.8.6 Relation between Science Interest and Components of Multiple Intelligences of students at Upper Primary level based on Achievement in Science (Std: VII, N=350)

1) The coefficients of correlation between the scores of Science Interest and Verbal-Linguistic Intelligence of Low, Average and High Achievers in Science are; r=-0.069 (N=47, t=0.7947; p>0.05), r=-0.015 (N=154, t=0.3140; p>0.05) and r=0.143 (N=149, t=2.9750; p<0.01) respectively. And the t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=0.5496, p>0.05), (t=2.0796, p<0.05) and (t=1.2243, p>0.05) respectively. Thus, it can be interpreted that there is significant relationship between Science interest and Verbal- Linguistic Intelligence among

Low and High Achievers in science and no significance among Low and Average Achievers in science and Average and High Achievers in science. Therefore the Hypotheses $H_2(5a_1)$, $H_2(5a_2)$ and $H_2(5a_3)$ are substantiated.

2) The coefficients of correlation between the scores of Science Interest and Musical Intelligence of Low, Average and High Achievers in Science are; r=0.058 (N=47, t=0.6665; p>0.05), r=0.048 (N=154, t=1.0058; p>0.05) and r=0.021 (N=149, t=0.4325; p>0.05) respectively. And the t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=0.8672, p>0.05), (t=0.1243, p>0.05) and (t=0.5509, p>0.05) respectively. Thus, it can be interpreted that there is no significant relationship between Science interest and Musical Intelligence among Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science. Therefore the Hypotheses $H_2(5b_1)$, $H_2(5b_2)$ and $H_2(5b_3)$ are substantiated.

3) The coefficient of correlation obtained between the scores of Science Interest and Interpersonal Intelligence of Low , Average and High Achievers in Science are; r=0.035 (N=47, t=0.4024; p>0.05), r=0.118 (N=154, t=2.4872; p<0.05) and 0.03 (N=149, t=0.6180; p>0.05) respectively. And the t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=2.4103,p<0.05), (t=0.1189, p>0.05) and (t=2.0856, p<0.05) respectively. Thus, it can be interpreted that there exists a significant relationship between Science Interest and Interpersonal Intelligence among Low and Average Achievers in Science and no significance among Average and High Achievers in Science. Therefore the Hypothesis $H_2(5c_1)$, $H_2(5c_2)$ and $H_2(5c_3)$ are substantiated.

4) The coefficients of correlation between the scores of Science Interest and Intrapersonal Intelligence of Low, Average and High Achievers in Science are; r=-0.102 (N=47, t=1.1781; p>0.05), r=-0.003 (N=154, t=0.0628; p>0.05) and 0.006 (N=149, t=0.1236; p>0.05) respectively. And the t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=1.1079, p>0.05), (t=0.9691, p>0.05) and (t=2.6783, p<0.01) respectively. Thus, it can be interpreted that there is no significant relationship between Science interest and Intrapersonal Intelligence among Low and Average and Low and High Achievers in Science and is significant among Average and High Achievers in Science. Therefore the Hypotheses $H_2(5d_1)$, $H_2(5d_2)$ and $H_2(5d_3)$ are substantiated.

5) The coefficients of correlation between the scores of Science Interest and Bodily-Kinesthetic Intelligence of Low, Average and High Achievers in Science are; r=0.077 (N=47, t=0.8874; p>0.05), r=0.065 (N=154, t=1.3633; p>0.05) and r=-0.02 (N=149, t=0.4119; p>0.05) respectively. And the t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=0.8930, p>0.05), (t=1.2475, p>0.05) and (t=0.3215, p>0.05) respectively. Thus, it can be interpreted that there is no significant relationship between Science interest and Bodily- Kinesthetic Intelligence among

Low and Average, Low and High and Average and High Achievers in Science. Therefore the Hypothesis $H_2(5e_1)$, $H_2(5e_2)$ and $H_2(5e_3)$ are substantiated.

6) The coefficients of correlation between the scores of Science Interest and Logical-Mathematical Intelligence of Low, Average and High Achievers in Science are; r=0.683 (N=47, t=10.7443; p<0.01), r=0.108 (N=154, t=2.2736; p<0.05) and 0.041 (N=149, t=0.8449; p>0.05) respectively. And the t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=4.2385, p<0.01), (t=3.2209, p<0.01) and (t=2.5679, p<0.05) respectively. Thus, it can be interpreted that there is significant relationship between Science interest and Logical- Mathematical Intelligence among Low and Average, Low and High and Average and High Achievers in Science. Therefore the Hypotheses $H_2(5f_1)$, $H_2(5f_2)$ and $H_2(5f_3)$are substantiated.

7) The coefficients of correlation between the scores of Science Interest and Spatial Intelligence of Low, Average and High Achievers in Science are; r=0.262 (N=47, t=3.1192; p<0.01), r=0.423 (N=154, t=9.7709; p<0.01) and r=0.301 (N=149, t=6.4992; p<0.01) respectively. And the t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=2.2183, p<0.05), (t= 2.5412, p<0.05) and (t=3.3624, p<0.01) respectively. Thus, it can be interpreted that there is significant relationship between Science interest and Spatial Intelligence among Low and Average, Low and High and Average and High Achievers in Science. Therefore the Hypotheses $H_2(5g_1)$, $H_2(5g_2)$ and $H_2(5g_3)$ are substantiated.

8) The coefficients of correlation between the scores of Science Interest and Naturalistic Intelligence of Low, Average and High Achievers in Science are; r=0.059 (N=47, t=0.6791; p>0.05), r=0.414 (N=154, t=9.5189; p<0.01) and r=0.168 (N=149, t=3.5089; p<0.01)respectively. And the Calculated t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=3.2055, p<0.01), (t=1.9891, p<0.05) and (t=2.1051, p<0.05) respectively. Thus, it can be interpreted that there is significant relationship between Science interest and Naturalistic Intelligence among Low and Average, Low and Average and Average and High Achievers in Science. Therefore the Hypotheses $H_2(5h_1)$, $H_2(5h_2)$ and $H_2(5h_3)$ are substantiated.

9) The coefficients of correlation between the scores of Science Interest and Existential Intelligence of Low, Average and High Achievers in Science are; r=0.076 (N=47, t=0.8758; p>0.05), r=0.045 (N=154, t=0.9428; p>0.05) and r=0.02 (N=149, t=0.4119; p>0.05) respectively. And the t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=0.1819, p>0.05), (t=0.4178, p>0.05) and (t=1.0046, p>0.05) respectively. Thus, it can be interpreted that there is no significant relationship between Science interest and Existential Intelligence among Low and Average, Low and High and Average and High Achievers in Science. Therefore the Hypotheses $H_2(5i_1)$, $H_2(5i_2)$ and $H_2(5i_3)$ are substantiated.

10) The coefficients of correlation between the scores of Science Interest and Moral/Spiritual Intelligence of Low, Average and High Achievers in Science are;

r=0.178 (N=47, t=2.0785; p<0.05), r=0.07 (N=154, t=1.4688; p>0.05) and r=0.079 (N=149, t=1.6317; p>0.05) respectively. And the t-values between Low and Average Achievers in Science, Low and High Achievers in Science and Average and High Achievers in Science are; (t=1.7992,p>0.05), (t=0.4206, p>0.05) and (t=0.1437, p>0.05) respectively. Thus, it can be interpreted that there is no significant relationship between Science interest and Moral/Spiritual Intelligence among Low and Average, Low and High and Average and High Achievers in Science. Therefore the Hypotheses $H_2(5j_1)$, $H_2(5j_2)$ and $H_2(5j_3)$are substantiated.

1.8.7. Impact of Components of Multiple Intelligences on Science Interest at Upper Primary level

1) The β- coefficient of correlation between the scores of Science Interest (dependent) and Verbal- Linguistic Intelligence (independent) is found to be -0.02; with Standard Error and β-Significant value are 0.02 and 0.199 respectively. The β-Significance (0.199) indicates that Verbal – Linguistic Intelligence has no impact on Science Interest.

2) The β- coefficient of correlation between the scores of Science Interest (dependent) and Musical Intelligence (independent) is found to be 0.01; with Standard Error and β-Significant value are 0.02 and 0.543 respectively. The β-Significance (0.543) indicates that Musical Intelligence has no impact on Science Interest.

3) The β- coefficient of correlation between the scores of Science Interest (dependent) and Interpersonal Intelligence (independent) is found to be -0.01, with Standard Error and β-Significant value are 0.03 and 0.764 respectively. The β- Significance (0.764) indicates that Interpersonal Intelligence has no impact on Science Interest.

4) The β- coefficient of correlation between the scores of Science Interest (dependent) and Intrapersonal Intelligence (independent) is found to be 0.13; with Standard Error and β-Significant value are 0.03 and 0.004 respectively. The β-Significance (0.004) indicates that Intrapersonal Intelligence has slight impact on Science Interest.

5) The β- coefficient of correlation between the scores of Science Interest (dependent) and Bodily- Kinesthetic Intelligence (independent) is found to be 0.03; with Standard Error and β-Significant value are 0.02 and 0.263 respectively. The β-Significance (0.263) indicates that Bodily- Kinesthetic Intelligence has no impact on Science Interest.

6) The β- coefficient of correlation between the scores of Science Interest (dependent) and Logical- Mathematical Intelligence (independent) is found to be 0.03; with Standard Error and β-Significant value are 0.04 and 0.003 respectively. The β-Significance (0.003) indicates that Logical- Mathematical Intelligence has good impact on Science Interest.

7) The β- coefficient of correlation between the scores of Science Interest (dependent) and Spatial Intelligence (independent) is found to be 0.26; with Standard Error and β-Significant value are 0.03 and 0.000 respectively. The β-Significance (0.000) indicates that Spatial Intelligence has good impact on Science Interest.

8) The β- coefficient of correlation between the scores of Science Interest (dependent) and Naturalistic Intelligence (independent) is found to be 0.13; with Standard Error and β-Significant value are 0.04 and 0.000 respectively. The β-Significance (0.000) indicates that Naturalistic Intelligence has good impact on Science Interest.

9) The β- coefficient of correlation between the scores of Science Interest (dependent) and Existential Intelligence (independent) is found to be -0.02, with Standard Error and β-Significant value are 0.04 and 0.529 respectively. The β-Significance (0.529) indicates that Existential Intelligence has no impact on Science Interest.

10) The β- coefficient of correlation between the scores of Science Interest (dependent) and Moral/Spiritual Intelligence (independent) is found to be 0.04; with Standard Error and β-Significant value are 0.03 and 0.176 respectively. The β-Significance (0.176) indicates that Moral/Spiritual Intelligence has no impact on Science Interest.

It is found that Intrapersonal (β-coefficient=0.13, Significance=0.004), Logical-Mathematical (β-coefficient=0.11, Significance=0.003), Spatial (β-coefficient=0.26, Significance=0.000) and Naturalistic Intelligence (β-coefficient=0.13, Significance=0.000) has strong impact on Science Interest. These Intelligences strongly support Science Interest to develop. These values help us to identify the influence of the components of Multiple Intelligence on Science Interest. Multiple correlation coefficient (R) obtained for this study is 0.621. Thus R^2 value= 0.386; this indicates that 38.6% of variation among in the Science Interest can be explained by the impact of four significant Multiple Intelligences. The rest of Science Interest (61.4%) is alter due to the other reasons like learning style, atmosphere, environment, Infrastructure facilities, parental education, parental income and teaching methods. Therefore the Hypothesis H_3 is substantiated.

1.9. TENABILITY OF HYPOTHESES

H_1: There is significant relation between Science interest and components of Multiple Intelligences (Total Sample wise)

1) The correlation between Science Interest and Verbal- Linguistic Intelligence (r= 0.0671, CR=2.1214, p<0.05). Therefore the Hypothesis H_1(a) is Accepted.

Partial correlation coefficient is r=0.0336 (CR=1.6291, p>0.05), indicate that Hypothesis $H_1(a._1)$ is Rejected.

2) There is no correlation between Science Interest and Musical Intelligence (r=0.0356, CR=1.1254, p>0.05). Therefore the Hypothesis H_1(b) is Rejected.

Partial correlation coefficient is r=-0.0117 (CR=0.9733, p>0.05), indicate that Hypothesis $H_1(b._1)$ is Rejected.

3) There is no correlation between Science Interest and Interpersonal Intelligence (r=0.0412, CR=1.3027, p>0.05). Therefore the Hypothesis H_1(c) is Rejected.

Partial correlation coefficient is r=0.0301 (CR=1.0682, p>0.05), indicate that Hypothesis $H_1(c._1)$ is Rejected.

4) There is correlation between Science Interest and Intrapersonal Intelligence (r=0.0742, CR= 2.3442, p<0.05). Therefore the Hypothesis H_1(d) is Accepted.

Partial correlation coefficient is r=0.0516 (CR=1.9223, p>0.05), indicate that Hypothesis H_1(d.$_1$) is Rejected.

5) There is no correlation between Science Interest and Bodily- Kinesthetic Intelligence(r=-0.0319, CR=1.0082, p>0.05).Therefore the Hypothesis H_1(e) is Rejected.

Partial correlation coefficient is r=-0.0111 (CR=0.7291, p>0.05), indicate that Hypothesis H_1(e.$_1$) is Rejected.

6) There is correlation between Science Interest and Logical- Mathematical Intelligence(r=0.7816, CR=39.5812, p<0.01).Therefore the Hypothesis H_1(f) is Accepted.

Partial correlation coefficient is r=0.5291 (CR=16.8915, p<0.01), indicate that Hypothesis H_1(f.$_1$) is Accepted.

7) There is correlation between Science Interest and Spatial Intelligence (r=0.6735, CR= 28.7823, p<0.01). Therefore the Hypothesis H_1(g) is Accepted.

Partial correlation coefficient is r=0.3356 (CR=12.5091, p<0.01), indicate that Hypothesis H_1(g.$_1$) is Accepted.

8) There is correlation between Science Interest and Naturalistic Intelligence (r=0.8660, CR= 54.7095, p<0.01). Therefore the Hypothesis H_1(h) is Accepted.

Partial correlation coefficient is r=0.6392 (CR=28.7852, p<0.01), indicate that Hypothesis H_1(h.$_1$) is Accepted.

9) There is no correlation between Science Interest and Existential Intelligence (r=-0.0403, CR=1.2741, p>0.05). Therefore the Hypothesis H_1(i) is Rejected.

Partial correlation coefficient is r=-0.0227 (CR=0.9430, p>0.05), indicate that Hypothesis H_1(i.$_1$) is Rejected.

10) There is correlation between Science Interest and Moral/Spiritual Intelligence (r=-0.0630, CR=1.9942, p<0.05).Therefore the Hypothesis H_1(j) is Accepted.

Partial correlation coefficient is r=-0.0496 (CR=1.2284, p>0.05), indicate that Hypothesis H_1(j.$_1$) is Rejected.

H_2(1): There is significant relation between Science interest and components of Multiple Intelligences (Gender wise)

1) There is correlation between Science interest and Verbal- Linguistic Intelligence among Boys and Girls (t=2.3294, p<0.05). Therefore the Hypothesis H_2(1a) is Accepted.

2) There is no correlation between Science interest and Musical Intelligence among Boys and Girls (t=1.4523, p>0.05). Therefore the Hypothesis H_2(1b) is Rejected.

3) There is no significant relationship between Science interest and Interpersonal Intelligence among Boys and Girls (t=1.5681, p>0.05). Therefore the Hypothesis H_2(1c) is Rejected.

4) There is correlation between Science interest and Intrapersonal Intelligence among Boys and Girls (t=2.0135, p<0.05). Therefore the Hypothesis H_2(1d) is Accepted.

5) There is no correlation between Science interest and Bodily- Kinesthetic Intelligence among Boys and Girls (t=1.6857, p>0.05). Therefore the Hypothesis H_2(1e) is Rejected.

6) There is correlation between Science interest and Logical- Mathematical Intelligence among Boys and Girls (t=22.987, p<0.01). Therefore the Hypothesis H_2(1f) is Accepted.

7) There is correlation between Science interest and Spatial Intelligence among Boys and Girls (t=26.439, p<0.01). Therefore the Hypothesis H_2(1g) is Accepted.

8) There is correlation between Science interest and Naturalistic Intelligence among Boys and Girls (t=34.822, p<0.01). Therefore the Hypothesis H_2(1h) is Accepted.

9) There is no correlation between Science interest and Existential Intelligence among Boys and Girls (t=1.7832, p>0.05). Therefore the Hypothesis H_2(1i) is Rejected.

10) There is no correlation between Science interest and Moral/Spiritual Intelligence among Boys and Girls (t=1.8919, p>0.05). Therefore the Hypothesis H_2(1j) is Rejected.

H_2 (2): There is significant relation between Science interest and components of Multiple Intelligences (Locale wise)

1) There is no correlation between Science interest and Verbal- Linguistic Intelligence among students residing in Rural area and Urban area (t=0.0113, p>0.05). Therefore the Hypothesis H_2(2a) is Rejected.

2) There is no correlation between Science interest and Musical Intelligence among students residing in Rural area and Urban area (t=0.2381, p>0.05). Therefore the Hypothesis H_2(2b) is Rejected.

3) There is no correlation between Science Interest and Interpersonal Intelligence among students residing in Rural area and Urban area (t=0.9630, p>0.05). Therefore the Hypothesis H_2(2c) is Rejected.

4) There is no correlation between Science interest and Intrapersonal Intelligence among students residing in Rural area and Urban area (t=0.1337, p>0.05). Therefore the Hypothesis H_2(2d) is Rejected.

5) There is correlation between Science interest and Bodily- Kinesthetic Intelligence among students residing in Rural area and Urban area (t=3.9514, p<0.01). Therefore the Hypothesis H_2(2e) is Accepted.

6) There is no correlation between Science interest and Logical- Mathematical Intelligence among students residing in Rural area and Urban area (t=1.6147, p>0.05). Therefore the Hypothesis H_2(2f) is Rejected.

7) There is no correlation between Science interest and Spatial Intelligence among students residing in Rural area and Urban area (t=1.8872, p>0.05). Therefore the Hypothesis H_2(2g) is Rejected.

8) There is correlation between Science interest and Naturalistic Intelligence among students residing in Rural area and Urban area (t=3.5753, p<0.01). Therefore the Hypothesis H_2(2h) is Accepted.

9) There is correlation between Science interest and Existential Intelligence among students residing in Rural area and Urban area (t=2.3024, p<0.05). Therefore the Hypothesis H_2(2i) is Accepted.

10) There is no correlation between Science interest and Moral/Spiritual Intelligence among students residing in Rural area and Urban area (t=1.1852, p>0.05). Therefore the Hypothesis H_2(2j) is Rejected.

H_2 (3): There is significant relation between Science interest and components of Multiple Intelligences (Type of Management wise)

1) There is correlation between Science interest and Verbal- Linguistic Intelligence among Government and Private school students (t=2.3291, p<0.05). Hypothesis H_2(3a) is Accepted.

2) There is no correlation between Science interest and Musical Intelligence among Government and Private school students (t=0.4529, p>0.05). Hypothesis H_2(3b) is Rejected.

3) There is no correlation between Science interest and Interpersonal Intelligence among Government and Private school students (t= 0.5683, p>0.05). Hypothesis H_2(3c) is Rejected.

4) There is correlation between Science interest and Intrapersonal Intelligence among Government and Private school students (t=2.0134, p<0.05). Hypothesis H_2(3d) is Accepted.

5) There is no correlation between Science interest and Bodily- Kinesthetic Intelligence among Government and Private school students (t= 0.4572, p>0.05). Hypothesis H_2(3e) is Rejected.

6) There is no correlation between Science interest and Logical- Mathematical Intelligence among Government and Private school students (t=0.9876, p>0.05). Hypothesis H_2(3f) is Rejected.

7) There is correlation between Science interest and Spatial Intelligence among Government and Private school students (t=2.8393, p<0.01). Hypothesis H_2(3g) is Accepted.

8) There is correlation between Science interest and Naturalistic Intelligence among Government and Private school students (t=4.8227, p<0.01). Hypothesis H_2(3h) is Accepted.

9) There is no correlation between Science interest and Existential Intelligence among Government and Private school students (t=1.7832, p>0.05). Hypothesis H_2(3i) is Rejected.

10) There is no correlation between Science interest and Moral/Spiritual Intelligence among Government and Private school students (t=0.0119, p>0.05). Hypothesis H_2(3j) is Rejected.

H_2(4): There is significant relation between Science interest and components of Multiple Intelligences (Educational level wise)

1) **C**orrelation between Science interest and Verbal- Linguistic Intelligence among the pairs;
- **a)** School students at Standard V and VI (t=0.5327, p>0.05), Hypothesis $H_2(4a_1)$ is Rejected.
- **b)** School students at Standard V and VII (t=2.2802, p<0.05), Hypothesis $H_2(4a_2)$ is Accepted.
- **c)** School students at Standard VI and VII (t=1.1944, p>0.05), Hypothesis $H_2(4a_3)$ is Rejected.

2) Correlation between Science interest and Musical Intelligence among the pairs;
- **a)** School students at Standard V and VI (t=0.4413, p>0.05), Hypothesis $H_2(4b_1)$ is Rejected.
- **b)** School students at Standard V and VII (t= 0.4107, p>0.05), Hypothesis $H_2(4b_2)$ is Rejected.
- **c)** School students at Standard VI and VII (t=0.2268, p>0.05), Hypothesis $H_2(4b_3)$ is Rejected.

3) Correlation between Science Interest and Interpersonal Intelligence among the pairs;
- **a)** School students at Standard V and VI (t=1.0957, p>0.05), Hypothesis $H_2(4c_1)$ is Rejected.
- **b)** School students at Standard V and VII (t= 0.2138, p> 0.05), Hypothesis $H_2(4c_2)$ is Rejected.
- **c)** School students at Standard VI and VII (t= 2.3224, p<0.05), Hypothesis $H_2(4c_3)$ is Accepted.

4) Correlation between Science interest and Intrapersonal Intelligence among the pairs;
- **a)** School students at Standard V and VI (t=2.3505, p<0.05), Hypothesis $H_2(4d_1)$ is Accepted.
- **b)** School students at Standard V and VII (t=0.6993, p>0.05), Hypothesis $H_2(4d_2)$ is Rejected.
- **c)** School students at Standard VI and VII (t=1.1018, p>0.05), Hypothesis $H_2(4d_3)$ is Rejected.

5) Correlation between Science interest and Bodily- Kinesthetic Intelligence among the pairs;
- **a)** School students at Standard V and VI (t=0.8489, p>0.05), Hypothesis $H_2(4e_1)$ is Rejected.

b) School students at Standard V and VII (t=0.5057, p>0.05), Hypothesis $H_2(4e_2)$ is Rejected.

c) School students at Standard VI and VII (t=0.4785, p>0.05), Hypothesis $H_2(4e_3)$ is Rejected.

6) Correlation between Science interest and Logical- Mathematical Intelligence among the pairs;

a) School students at Standard V and VI (t= 3.2063, p<0.01), Hypothesis $H_2(4f_1)$ is Accepted.

b) School students at Standard V and VII (t= 2.1582, p<0.05), Hypothesis $H_2(4f_2)$ is Accepted.

c) School students at Standard VI and VII (t=2.0957, p<0.05), Hypothesis $H_2(4f_3)$ is Accepted.

7) Correlation between Science interest and Spatial Intelligence among the pairs;

a) School students at Standard V and VI (t=6.3761, p<0.01), Hypothesis $H_2(4g_1)$ is Accepted.

b) School students at Standard V and VII (t=1.2745, p>0.05), Hypothesis $H_2(4g_2)$ is Rejected.

c) School students at Standard VI and VII (t=4.5979, p<0.01), Hypothesis $H_2(4g_3)$ is Accepted.

8) Correlation between Science interest and Naturalistic Intelligence among the pairs;

a) School students at Standard V and VI (t=4.4583, p<0.01), Hypothesis $H_2(4h_1)$ is Accepted.

b) School students at Standard V and VII (t= 2.4913, p<0.05), Hypothesis $H_2(4h_2)$ is Accepted.

c) School students at Standard VI and VII (t= 2.3540, p<0.05), Hypothesis $H_2(4h_3)$ is Accepted.

9) Correlation between Science interest and Existential Intelligence among the pairs;

a) School students at Standard V and VI (t=0.6434, p>0.05), Hypothesis $H_2(4i_1)$ is Rejected.

b) School students at Standard V and VII (t= 2.4872, p<0.05), Hypothesis $H_2(4i_2)$ is Accepted.

c) School students at Standard VI and VII (t= 1.0964, p>0.05), Hypothesis $H_2(4i_3)$ is Rejected.

10) Correlation between Science interest and Moral/Spiritual Intelligence among the pairs;

a) School students at Standard V and VI (t= 2.0743, p<0.05), Hypothesis $H_2(4j_1)$ is Accepted.

b) School students at Standard V and VII (t=0.3014, p>0.05), Hypothesis $H_2(4j_2)$ is Rejected.

c) School students at Standard VI and VII (t= 1.6432, p>0.05), Hypothesis $H_2(4j_3)$ is Rejected.

H_2(5): There is significant relation between Science interest and Components of Multiple Intelligences (Achievement in Science wise of Std: VII class)

1) Correlation between Science interest and Verbal- Linguistic Intelligence among the pairs;

a) Low and Average Achievers in science (t=0.5496, p>0.05), Hypothesis $H_2(5a_1)$ is Rejected.

b) Low and High Achievers in science (t=2.0796, p<0.05), Hypothesis $H_2(5a_2)$is Accepted.

c) Average and High Achievers in science (t= 1.2243, p>0.05), Hypothesis $H_2(5a_3)$ is Rejected.

2) Correlation between Science interest and Musical Intelligence among the pairs;

a) Low and Average Achievers in science (t= 0.8672, p>0.05), Hypothesis $H_2(5b_1)$ is Rejected.

b) Low and High Achievers in science (t=0.1243, p>0.05), Hypothesis $H_2(5b_2)$ is Rejected.

c) Average and High Achievers in science (t=0.5509, p>0.05), Hypothesis $H_2(5b_3)$ is Rejected.

3) Correlation between Science Interest and Interpersonal Intelligence among the pairs;

a) Low and Average Achievers in science (t=2.4103, p<0.05), Hypothesis $H_2(5c_1)$ is Accepted.

b) Low and High Achievers in science (t=0.1189, p>0.05), Hypothesis $H_2(5c_2)$ is Rejected.

c) Average and High Achievers in science (t=2.0856, p<0.05), Hypothesis $H_2(5c_3)$ is Accepted.

4) Correlation between Science interest and Intrapersonal Intelligence among the pair;

a) Low and Average Achievers in science (t=1.1079, p>0.05), Hypothesis $H_2(5d_1)$ is Rejected.

b) Low and High Achievers in science (t=0.9691, p>0.05), Hypothesis $H_2(5d_2)$ is Rejected.

c) Average and High Achievers in science (t=2.6783, p<0.01), Hypothesis $H_2(5d_3)$ is Accepted.

5) Correlation between Science interest and Bodily- Kinesthetic Intelligence among the pairs;

a) Low and Average Achievers in science (t=0.8930, p>0.05), Hypothesis $H_2(5e_1)$ is Rejected.

b) Low and High Achievers in science (t=1.2475, p>0.05), Hypothesis $H_2(5e_2)$ is Rejected.

c) Average and High Achievers in science (t=0.3215, p>0.05), Hypothesis $H_2(5e_3)$ is Rejected.

6) Correlation between Science interest and Logical- Mathematical Intelligence among the pairs;

a) Low and Average Achievers in science (t=4.2385, p<0.01), Hypothesis $H_2(5f_1)$ is Accepted.

b) Low and High Achievers in science (t=3.2209, p<0.01), Hypothesis $H_2(5f_2)$ is Accepted.

c) Average and High Achievers in science (t=2.5679, p<0.05), Hypothesis $H_2(5f_3)$ is Accepted.

7) Correlation between Science interest and Spatial Intelligence among the pairs;

a) Low and Average Achievers in science (t=2.2183, p<0.05), Hypothesis $H_2(5g_1)$ is Accepted.

b) Low and High Achievers in science (t= 2.5412, p<0.05), Hypothesis $H_2(5g_2)$ is Accepted.

c) Average and High Achievers in science (t=3.3624, p<0.01), Hypothesis $H_2(5g_3)$ is Accepted.

8) Correlation between Science interest and Naturalistic Intelligence among the pairs;

a) Low and Average Achievers in science (t= 3.2055, p<0.01), Hypothesis $H_2(5h_1)$ is Accepted.

b) Low and High Achievers in science (t=1.9891, p<0.05), Hypothesis $H_2(5h_2)$ is Accepted.

c) Average and High Achievers in science (t=2.1051, p<0.05), Hypothesis $H_2(5h_3)$ is Accepted.

9) Correlation between Science interest and Existential Intelligence among the pairs;

a) Low and Average Achievers in science (t=0.1819, p>0.05), Hypothesis $H_2(5i_1)$ is Rejected.

b) Low and High Achievers in science (t= 0.4178, p>0.05), Hypothesis $H_2(5i_2)$ is Rejected.

c) Average and High Achievers in science (t= 1.0046, p>0.05), Hypothesis $H_2(5i_3)$ is Rejected.

10) Correlation between Science interest and Moral/Spiritual Intelligence among the pairs;

a) Low and Average Achievers in science (t=1.7992, p> 0.05). Hypothesis $H_2(5j_1)$ is Rejected.

b) Low and High Achievers in science (t=0.4206, p>0.05), Hypothesis $H_2(5j_2)$ is Rejected.

c) Average and High Achievers in science (t= 0.1437, p>0.05). Hypothesis $H_2(5j_3)$ is Rejected.

H_3: Impact of Components of Multiple Intelligences on Science Interest at Upper Primary level

It was found that Intrapersonal (β-significance=0.004), Logical-Mathematical (β-significance=0.003), Spatial (β-significance=0.000) and Naturalistic (β-significance=0.000) Intelligences has strong impact on Science Interest. These Intelligences strongly support Science Interest to develop. Multiple correlation coefficient (R) is obtained for this study is 0.621. Thus R^2 value= 0.386; this indicates that 38.6% of variation among in the Science Interest can be explained by the impact of four significant Multiple Intelligences. The rest of Science Interest 61.4% is alter due to the other reasons like learning style, atmosphere, environment, Infrastructure facilities, parental education, parental income and teaching methods. Therefore the Hypothesis H_3 was partially accepted.

1.10. EDUCATIONAL IMPLICATIONS OF THE STUDY

Science Interest shows the likes and dislikes with the concerned subject. It is related to the preferences for activities, social institutions or groups and involves personal feeling about something. It is closely linked with their instincts, basic needs, drives and motives. Learning becomes effective and efficient when interests of the children are satisfied.

As Science Interest increases, the progress will happen to both the individual and the nation. The technological advancement is the after effect of science interest. So the

teacher concerned with Intelligences that foster Science Interest among Primary school students, which may develop scientific attitude and increase science achievement.

This integrated method develops competencies like spirit of inquiry, objectivity, courage to question, problem solving, decision making among Primary school students. This also helps to prepare an 'Intelligence profile' in Upper Primary Schools in Kerala.

Another observation from the study is that most of the students fall in the category of "average" as far as all the Multiple Intelligences. This means that our students at Primary level are average in their level of Intelligences.

At this juncture the investigator suggests the following implications on the light of the findings from the study.

- It is evident from the analysis that, Multiple Intelligences Test Battery (MITB), an effective tool to measure the Intelligences of Elementary school students.
- The study revealed that MITB has high discriminating power to distinguish between Gender, Locale, Type of Management and Educational levels.
- Multiple Intelligences Test Battery (MITB) is very much influencing the students' perspective. So it is suggested to administer this tool to all Elementary school students to identify their taste and interest.
- The study revealed that Picturised Science Interest Inventory (PSII) has also high discriminating power to distinguish between Gender, Locale, Type of Management and Educational levels.
- Resource units based on this study are a necessity in schools to help the teachers to realize possibilities and potentialities of students.
- Literature related to various aspects of Science Interest should be made available to teachers and students.
- It is the responsibility of the parents to provide a hazel free domestic environment for learning to their wards.
- It may be the duty of the school authorities to provide ample opportunities for the parents to involve and to interact with the academic activities of their children.

The policy makers of education if they consider the above mentioned observations in a positive frame of mind; definitely we have to create a new generation which have the urge and enthusiasm for a better and bright future.

1.11. SUGGESTIONS FOR FURTHER RESEARCH

In the context of the study the Investigator proposes the following suggestions for further study.

1. The present study was confined to a representative sample of Elementary school students. It is therefore suggested the similar studies can be conducted for Secondary school and Higher Secondary school students.
2. The present study had selected students from two districts of Kerala as the samples. This can be conducted for a state wide sample.
3. Similar study can be conducted by considering the family climate.
4. Similar study can be conducted by considering the Socio-Economic Status of parents.

5. Similar study can be conducted by considering the Method of teaching and Motivation.
6. The present study can replicate into an experimental study by choosing the Multiple Intelligences Pedagogy as independent variable and Science Interest as dependent variable and can be test its effectiveness.

The Investigator hopefully believes that the findings of the present study will help teachers and curriculum makers in understanding the Relationship between Science fostering Intelligences and Science Interest and believed that the findings of the present study inspires all those; for evolving a teaching learning environment which recognizes the importance of Multiple Intelligences and Science Interest.